DIRECTORATE OF
HEALTH CARE STUDIES
AND CLINICAL INVESTIGATION

A SURVEY OF DENTAL EMERGENCIES AMONG U.S. ARMY ACTIVE DUTY PERSONNEL

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This report presents the results of a 1992 survey to describe characteristics of soldiers presenting with dental emergencies; documents the conditions causing dental emergencies; reports the disposition of soldiers with dental emergencies; and estimates the costs in time to the soldier's unit and to the Army Dental Care System associated with the diagnosis, treatment, and disposition of a soldier with a dental emergency.

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SUMMARY

Background

At the request of the Chief of the Army Dental Corps, the Directorate of Health Care Studies and Clinical Investigation initiated a study to survey dental emergencies among active duty soldiers treated by the U.S. Army Dental Care System. This study had four objectives: (1) to describe characteristics of soldiers presenting with dental emergencies; (2) to document the conditions causing dental emergencies; (3) to report the disposition (treatment) of soldiers with dental emergencies; and (4) to estimate the costs in time to the soldier's unit and to the Army Dental Care System associated with the diagnosis, treatment, and disposition of a soldier with a dental emergency.

Methods

Utilizing a four part 60-item questionnaire, a cross-sectional survey was conducted for a 6-week period at five U.S. Army Health Services Command installations serving a combined active duty population of 82,908. All non-appointed active duty personnel seeking emergency dental treatment, both during and after normal clinic hours, were eligible for the study.

The questionnaire data was analyzed using the Statistical Analysis System™ to produce descriptive statistics, bivariate comparisons, and multivariate linear regression models to explain factors associated with the total number of hours involved in a dental emergency episode.

Results

The final sample for this study included 805 participants whose questionnaires contained complete information on the diagnosis or treatment for the presenting dental emergency. The sample was predominantly white males under the age of 30 years who had under 10 years of military service, served in deployable field units, had a high school education, had a dental examination in the past 12 months, and were in a dental fitness classification of 1 or 2.

Defective restorations were the most frequent primary diagnosis (13%) followed by advanced caries (12%). Mild to moderate caries accounted for 9.0% of the primary diagnoses, whereas the conditions of pericoronitis and unerupted tooth were responsible for nearly 17% of the diagnoses. Endodontic conditions represented 8.0% of the primary diagnoses and the mandibular third molar was the most frequent tooth involved as a chief complaint (18%). For those in dental fitness class 3, advanced caries was by far the most common diagnosis (30%).

No treatment was provided to approximately 11% of the emergency patients seen, 34% received temporary treatment, nearly 35% received some form of permanent treatment, and

14% of the patients were referred to another dentist for treatment. A written prescription for medication was the most frequently performed procedure. Nearly 46% of the patients required an additional follow-up appointment for the tooth or area causing their dental emergency.

The mean time for a dental emergency episode was 1.62 hours per soldier. Soldiers with the rank of E4 and below spent significantly more time in a dental emergency episode than officers even when controlling for diagnosis. Soldiers with a diagnosis of advanced caries, those who had not had an annual examination, those who were in class 3, and those whose present problem was previously charted as dental class 3, spent significantly greater amounts of time seeking treatment.

The mean time involved for a dentist treating a dental emergency was 0.84 hours. Females and those with a primary diagnosis of advanced caries utilized significantly greater amounts of dentist time. Also, significantly more dentist time was required to treat those who had not had an annual examination, those in dental fitness class 3, and for those whose problem had been previously charted as dental class 3. The linear regression model explaining the total hours of soldier's time involved in the treatment of a dental emergency showed that on average, those with a primary diagnosis of advanced caries spent nearly 40 minutes more in total treatment time than those with any other diagnosis. This model also showed that having an annual examination resulted in a reduction of approximately 20 minutes in total soldier's time involved in dental emergency treatment.

The results of the regression model for total dentist's time found that having a primary diagnosis of advanced caries added nearly 22 minutes to the total treatment time, and that the treatment of a dental problem that had been previously charted as a class 3 problem significantly increased total dentist's time.

Conclusion

This study has focused on the conditions causing and the impact of dental emergencies in an Army garrison population. The results suggest that the social and economic consequences of dental emergencies are significant, both to the dental care system and to the Army. The results of this study, when viewed in terms of the social and economic impact, can be used by the Dental Corps leadership in planning appropriate actions for disease management and resource allocation as well as developing more effective arguments for securing support and needed funds in an integrated policy on the Army's health.

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INTRODUCTION

Purpose

As part of the Army Medical Department Studies Program, the Directorate of Health Care Studies and Clinical Investigation initiated a study to survey dental emergencies among active duty soldiers treated by the U.S. Army Dental Care System. The results of this report provide the Army Dental Corps leadership with information concerning the nature of and the potential impact of dental emergencies.

Background

Although oral health problems are rarely matters of life and death, they can significantly impact on social, economic, and psychological areas of life. Data on the impact of oral disease on these areas would be valuable for several reasons; the data would aid decisions regarding allocation of health care resources; the data would broaden the understanding of the scope of oral health problems; and knowledge of the social, economic, and psychological consequences of oral conditions and of their treatment could provide a better understanding of oral health behaviors including preventive behavior and the use of dental services.

Until 1984, research on the social impact of dental diseases was limited. Reisine (1985) showed that in analyzed data from the 1981 U.S. National Health Interview survey, that dental conditions were the cause of an appreciable number of days of bed disability (6.7 million), restricted activity (17.7 million), and work loss (7.0 million). In another survey of over 2,500 employed persons in the Hartford area, Reisine (1984) found that at least one-fourth of employees lost some time from work in the past year because of oral problems; most of the lost time was attributable to visits for curative dental purposes. In a follow-up to the 1984 study, Reisine (1985) reported a mean of 1.26 hours of work loss per person per year due to acute dental problems. In that study, persons with preventive visits were less likely to experience work loss and had fewer hours of work loss than those without preventive visits. This finding attests again to the validity and cost benefits of preventive dentistry. Gift, Reisine, and Larach (1992), analyzing the 1989 National Health Interview Survey, found that 164 million hours of work were missed annually at the national level by employed individuals as a result of their own dental visits or problems. This volume of time lost from work represents about 1.48 hours per employed individual. These studies show that the potential impact of work loss, while small on an individual level, is large on a societal level resulting in thousands of work loss days annually.

Oral conditions also impose huge economic consequences on society. In 1988, the U.S. Health Care Financing Administration reported that $29.4 billion were spent for dental services (U.S. Department of Health and Human Services, 1988). This figure represents nearly 5.4% of the total 1988 health care expenditures and is probably an incomplete estimate of the direct costs associated with dental services. Even harder to measure are the

indirect costs associated with oral disease, such as those from decreased productivity and the opportunity cost of time lost from work activities.

Perhaps the psychological impact of oral disease has been identified longer than either the social or economic consequences. Pain and/or discomfort are probably the most important psychological experiences associated with oral disease. As Nikias (1985) pointed out, there has been essentially no research documenting the frequency, severity, and extent of oral pain and dental emergencies among general populations. Studies conducted in Great Britain showed a higher prevalence of dental pain than had been anticipated; moreover, only 15% of a community sample who had toothaches, had visited a dentist (Miller, Elwood, and Swallow, 1975; Miller, 1978). Perhaps data based on emergency patients underestimates the prevalence of dental pain and its psychological impact because large numbers of people do not consult dentists for pain.

The social, economic, and psychological consequences of oral disease as they apply to society in general have application for research and action in the Army. The dental emergency rate is the principal outcome measure of the Dental Care System's Dental Combat Effectiveness Monitoring Program. Results from studies of dental care during field training exercises (Sumnicht, 1965; Payne and Posey, 1981; King, Parker, and Brunner, 1982; King and Brunner, 1984), at strategic location assignments (Ludwick and Gendron, 1974; McCarroll, Traver and Phair, 1979), of prisoners of war (Diem and Richlin, 1978; Berg and Richlin, 1977), and in combat (Jeffcott, 1955; Reister, 1973; McConnell, 1974; Heiser, 1974) have consistently emphasized the impact that dental emergencies can have on Army personnel. The transient loss of personnel, and noneffectiveness of soldiers in combat and field training exercises due to dental emergencies continue to be problems. This is especially true today as the Army undergoes organizational changes that will affect the structure and distribution of dental services provided to units once they have deployed. These changes will result in fewer dentists involved in deployment and will necessitate that the majority of dental services be provided while the soldier is in garrison. To date, there has been no study focusing on the conditions causing and the impact of dental emergencies in an Army garrison population.

In 1992, dental emergencies accounted for 8.6% of all active duty dental visits to the U.S. Army Health Services Command (HSC) dental clinics. The approximate cumulative incidence or emergency rate for this period was 422.4 emergencies per 1,000 soldiers per year (Health Services Command, 1992). The policy implications associated with the impact of this emergency rate are significant. The use of epidemiological data to formulate appropriate policies addressing issues relating to the causes and consequences of a dental emergency could provide the potential for significant monetary and personnel savings, both to the Dental Care System and to the Army. Also, if oral health status is presented in terms of the social and economic consequences, as well as the traditional clinical indicators, a more effective argument can be made to secure support and needed funds in an integrated policy on the Army's health.

This study, thus, has four objectives: (1) to describe characteristics of soldiers presenting with dental emergencies; (2) to document the conditions causing dental emergencies; (3) to report the disposition (treatment) of soldiers with dental emergencies; and (4) to estimate the costs in time to the soldier's unit and to the Army Dental Care System associated with the diagnosis, treatment, and disposition of a soldier with a dental emergency.

METHODS

Overview

Research Design

A cross-sectional survey was undertaken to collect data on active duty Army personnel seeking emergency dental treatment at an Army dental clinic because of an episode of acute dental or oro-facial pain. Data collection was conducted for a 6-week period beginning in November 1992 at five Army installations serving a combined active duty population of 82,908.

Questionnaire Design

A 60-item questionnaire, consisting of four parts, was developed to collect information concerning a dental emergency episode. The dental clinic receptionist completed Part 1 by obtaining administrative information from the emergency patient as well as from their dental record. Part 2 was completed by the emergency patient. Information was collected on sociodemographic characteristics, current duty position, perceived oral health status, as well as information concerning the patient's current dental problem. The dental assistant completed Part 3 obtaining additional administrative information from the patient's dental record. The treating dentist completed Part 4 recording the tooth or area that was the patient's chief complaint, the diagnosis of the condition, the treatment provided, and the disposition of the patient.

The questionnaire was tested for clarity of instructions and ease of response on 100 active duty soldiers seeking emergency treatment at Budge Dental Clinic, Fort Sam Houston, Texas, from 5 to 7 May 1992. An analysis of the pretest questionnaires and a follow-up meeting with personnel involved in the pretest, resulted in moderate revision of the questionnaire and its instructions. The final questionnaire and its instructions appear in Appendix A.

Sample Selection

Fort Hood, Fort Knox, Fort Jackson, Fort Leonard Wood, and Fort Riley were conveniently selected for participation in the study for two reasons. First, all five installations reported large numbers of emergencies in FY 1992 (Dental Workload..., 1992).

This provided the opportunity to survey the large number of emergency patients in a short time period. Second, the varied types of units these installations support (combat, combat support, combat service support, and training) were viewed as being representative of the Army's active duty unit composition.

All non-appointed active duty personnel seeking emergency dental treatment at dental clinics, both during and after normal clinic hours, at one of the five installations during the survey period were eligible for the study.

Procedure

A tasking letter (Appendix B) from the Director of Dental Services, HSC, was sent to each of the five installation Dental Activity commanders requesting their assistance with this study and that they appoint a unit project officer for the survey. Questionnaires, along with a letter of instruction for administering the survey (Appendix A), were mailed to the five installation project officers who then met with all participating dental clinic personnel to explain the purpose and the administration of the survey. The principal investigator was available, via telephone, to clarify questions and to make decisions concerning participation in the survey.

At the end of the survey period, project officers collected the questionnaires and, after checking for their completeness, returned the questionnaires by certified mail to the Directorate of Health Care Studies and Clinical Investigation where they were reviewed and prepared for data analysis.

Data Analyses

Three approaches to the data were taken. First, simple frequencies were tabulated to describe the sample of emergency patients in terms of sociodemographic characteristics, current duty positions, duration of the dental problem, dental administrative characteristics, tooth/area involved, diagnosis, disposition, and treatment received. Second, chi-square tests and mean separation tests compared proportional differences and mean differences between the sociodemographic and dental administrative variables. Third, multivariate linear regression, was used to determine the independent effects of sociodemographic and dental administrative factors on the total number of hours involved in a dental emergency visit for the soldier and the dental care system while simultaneously controlling for the effects of other variables. Data analysis was performed using the Statistical Analysis System™.

RESULTS

Description of the Sample

The final sample for this study included only those participants whose questionnaires contained complete information on the diagnosis or treatment for the presenting dental emergency. Of the 869 questionnaires returned, 805 (93%) were available for analysis. Table 1 presents the sociodemographic and dental administrative characteristics of the final sample.

As shown in Table 1, the sample was predominantly under 30 years of age (76%), male (80%), white (56%), had under 10 years of military service (76%), educated for 12 years or less (52%), had a dental examination in the past 12 months (66%), had a dental fitness classification of a 1 or 2 (64%), and reported good to excellent perceived oral health (77%). Table 2 shows that the majority of the emergency patients (41%) were assigned to deployable field units.

Additional dental administrative characteristics of the sample are presented in Table 3. Permanent dental records were available for 726 (90%) of the survey participants of which 96% had an annual dental examination in the past 12 months. Of those emergency patients who were previously in dental fitness class 1 (9.2%), a significantly larger percentage had an annual examination in the past 12 months (88%). For those who were previously classified as fitness level 2 (55%), a significantly larger percent had an annual exam in the past 12 months (78%). As might be expected, the percentage of dental fitness class 4 patients who had an annual exam (11%) was significantly lower than those class 4 patients who had not been examined in the past 12 months. For those patients who had been classified as level 3 (21%), there was no significant difference between the percentage with or without an annual exam in the past 12 months. The most striking difference is in the comparison of those patients whose current problem had been charted before but not as a class 3. For this group, a significantly larger percentage (82%) had an annual exam in the past 12 months.

Nature of Dental Emergency Diagnoses

The diagnosis codes used in this study were taken from Department of Defense Directive 6410.1, "Standardization of Dental Classifications," dated 1 March 1991. The dentist providing the emergency service was asked to enter the two-digit code from the diagnosis list provided with the questionnaire which best described the patient's current condition. Table 4 shows the frequency of the 15 primary diagnostic codes. Defective restorations were the most frequent primary diagnosis (13%) followed by advanced caries (12%). Mild to moderate caries accounted for 9.0% of the primary diagnoses. The conditions of pericoronitis (9%) and an unerupted tooth (8%) were responsible for nearly 17% of the diagnoses. Endodontic conditions represented 8.0% of the primary diagnoses for the emergency patients. Mandibular third molars were the most frequent tooth (18%)

involved as the dental emergency chief complaint (Table 5) Mandibular first molars (15%) and maxillary first molars (12%) were the next most frequently involved teeth.

The frequency of primary diagnosis by age group and military rank appears in Tables 6 and 7 respectively. These two tables show that, with the exception of periodontally related diagnoses, the majority of the primary diagnoses were concentrated in the younger age groups (30 years old and below) and especially in the youngest age group of 17 to 24 years of age. This is not surprising given that nearly 60% of the emergency patients seen in this study were below the age of 24 and over 66% were in the military rank of E4 or below.

Table 7 also shows that of the 166 emergency patients that were in class 3, over 80% were below the rank of E4. A significantly greater proportion (25%) of those below the rank of E4 were in dental fitness class 3 than in either the E5 to E9 group (14%) or the WO1 to O9 ranks (4.2%). When the frequency of primary diagnoses for those in dental fitness class 3 were examined separately (Table 8), advanced caries was by far the most common diagnosis (30%).

The 15 primary diagnostic codes were selectively collapsed into 7 diagnostic groups to reflect the major diagnostic themes. The frequencies and definitions of the 7 diagnostic groups are displayed in Table 9. This table shows that the diagnostic groups reversible pulpitis (22%), irreversible pulpitis (19%), and pericoronitis (18%) accounted for just under 60% of all emergency diagnoses. The frequencies of the 7 diagnostic groupings by age and military rank are showed in Tables 10 and 11, respectively. These tables demonstrate the major concentration of diagnoses in the younger age group (17 to 24 years) and the junior enlisted soldiers (E1-E4). As might be expected, the most frequent diagnosis seen in these two inter-related groups was associated with pericoronitis (27%).

The frequencies of the 7 diagnostic groups stratified by dental fitness classification level are displayed in Table 12. For those whose classification level was 1 or 2, the most frequent diagnosis was reversible pulpitis followed by a diagnosis of pericoronitis. This table confirms what was presented in Table 8, namely that the most common diagnosis for soldiers in class 3 was irreversible pulpitis (42%). For those in class 4, reversible pulpitis and irreversible pulpitis were the two most frequent diagnoses.

Table 13 shows the frequency of the tooth/area involved by diagnostic group. First molars accounted for 28% of all the involved teeth with 36% of all first molars involving a diagnosis of irreversible pulpitis. Third molars constituted 27% of all diagnosed teeth of which 74% were diagnosed as associated with pericoronitis. In other words, first and third molars with either a diagnosis of irreversible pulpitis or pericoronitis accounted for over 30% of all the emergencies diagnosed.

Treatment and Disposition of Dental Emergency Patients

The survey questionnaire did not collect information on a dental clinic's procedure for providing dental emergency services, i.e. whether the emergency service provided merely triage services or, if time permitted, the treating dentist was free to provide definitive care. It was felt that throughout the Army Dental Care System various emergency service configurations exist and that the selected sample of clinics would reflect this range of services. Table 14 shows the twenty most frequently performed emergency services in this study. A written prescription for medication was the most frequently performed procedure (26%). Over 67% of these prescriptions were for a non-narcotic analgesic and 18% were for a narcotic analgesic.

The disposition of the emergency patients by diagnosis appears in Table 15. No treatment was provided to approximately 11% of the patients seen, 34% received temporary treatment, nearly 35% received some form of permanent treatment for their chief complaint, and 14% were referred to another dentist for treatment. Nearly 46% of the patients required an additional follow-up appointment for the tooth or area causing their dental emergency.

Time Impact of a Dental Emergency

Table 16 presents the results of the bivariate analysis and the multiple comparisons of means tests performed using the method of least squares to fit general linear models. Two outcome variables along with confidence intervals relating the time involved in treating dental emergencies are shown: the mean number of hours of soldier's time and the mean number of hours of dentist's time. Soldier's time was computed by subtracting the time the soldier arrived at the dental clinic (recorded on the questionnaire by the receptionist) from the time the soldier left the dental operatory (recorded by the treating dentist). The dentist's time was computed by subtracting the time the dental assistant recorded that the patient was seated in the operatory from the time the soldier left the dental operatory (recorded by the treating dentist).

Table 16 shows that for this sample, the mean time for a dental emergency episode was 1.62 hours per soldier. Soldiers with the rank of E4 and below, those with 12 years of education or less, and those who perceived their oral health status to be fair to poor spent significantly more time in a dental emergency episode than officers (WO1-O9), those with greater than 12 years of education, and those who perceived their oral health status to be good to excellent. As might be expected, rank and education were highly correlated ($r=.5769$, $p = .0001$). Soldiers with a diagnosis of irreversible pulpitis, those who had not had an annual exam, those who were in class 3, and those whose present problem was previously charted as dental class 3 spent significantly greater amounts of time seeking treatment than those with other diagnoses, those who had an annual exam, those who were not in class 3, and those whose current problem had not been previously recorded as dental class 3. These same relationships held true even when controlling for differences in primary diagnosis.

Table 16 shows that the mean time for a dental emergency episode was 0.84 hours per dentist. Females, those with a primary diagnosis of irreversible pulpitis, and those who perceived their oral health status to be fair to poor, utilized significantly greater amounts of dentist time than males, those with other than irreversible pulpitis as a diagnosis, and those whose oral health status was viewed as good to excellent. Also, significantly more dental time was required for those who had not had an annual examination, those in dental fitness classification 3, and for those whose problem had been previously charted as dental class 3. Again, these relationships were true when the analysis controlled for differences in diagnosis.

Multivariate analysis

Two linear regression models, one for soldier's time and one for dentist's time, were used to determine the independent effects of the sociodemographic and dental administrative characteristics shown to be important in the bivariate analyses, while simultaneously controlling for the effects of other variables. The results of the regression analysis explaining a dental emergency episode in terms of soldier's time and dentist's time are presented in Tables 17 and 18 respectively.

The model explaining total soldier's time accounted for only a small ($R^2 = 0.112$) but significant amount of variation (Table 17). Four variables were significant in determining the total hours of soldier's time. A diagnosis of irreversible pulpitis had the greatest effect and explained the most variation (contribution to R^2 was 66.5%). The positive effect of this variable indicated that for those with irreversible pulpitis, compared to those with another diagnosis, on average we would expect a 0.635 hour increase in the mean soldier's time. The second most important variable was having an annual exam in the past 12 months. This variable explained 17.9% of the variation in mean total time seen for this model and its negative effect indicates that compared to those who did not have an annual exam in the past 12 months, those who did on average would spend 0.322 fewer hours in total time for a dental emergency episode.

Two other variables, having 12 or fewer years of education and presenting with a dental problem that had previously been charted as a fitness class 3, had small but significant effects on the variation seen in total soldier's time. Compared to those with more than 12 years of education, those with fewer, on average spent 0.187 more hours in a dental emergency episode. For those whose current problem was previously charted as a class 3, one could expect them to have a .292 hour increase in the total time compared to those whose problem was not charted as a class 3.

The results of the linear multiple regression model explaining total hours involved for a dentist in treating a dental emergency found that five variables had significant effects (Table 18). Having a primary diagnosis of irreversible pulpitis and presenting with a dental problem that had previously been charted as a class 3 were both associated with significantly more hours of dentist treatment time. Table 18 also shows that being male, viewing one's oral health status as good to excellent, and having a military rank of E1 to E4 were

associated with significantly fewer dentist hours required to treat an emergency. Although this model explained only a small amount of the variation in total dentist time ($R^2 = 0.08$), all variables were significant ($p < .05$). As with the model for total soldier's time, a diagnosis of irreversible pulpitis contributed the most to the explained variation in total dentist time (74% of the R^2).

Costs in hours of a dental emergency

Table 19 shows that 264 thousand hours of soldier's time and 137 thousand hours of dentist's time were involved in treating dental emergencies in HSC dental clinics in 1992. These figures are based on projecting the results of this study onto the total number of emergency visits and the total active duty population served by HSC in 1992 (Health Services Command, 1992).

DISCUSSION

This paper analyzes the nature of dental emergencies in the Army Dental Care System, the characteristics of those who experience a dental emergency, the dental problems associated with an emergency, and the time impact of a dental emergency episode. The results will be discussed in terms of their implications for dental health policy.

Representativeness of the sample

Because there have been no previous studies of the nature and characteristics of dental emergencies in an Army garrison population, no attempt was made to use a stratified probability sample to ensure adequate representation of all Army personnel according to gender, age, race, rank, and unit type. As stated above, the sample selected for this study came from five Army installations which were conveniently selected to reflect the varied types of units within the Army and because of the number of emergency patients seen annually.

Table 20 displays the diversity of the sampled installations in terms of demographics and dental administrative characteristics. The figures on the number of active duty supported were obtained directly from the individual dental activities based on November 1992 data. The emergency rates appearing in Table 20 were obtained from the Dental Workload Reporting System for fiscal year 1992 (Dental Workload..., 1992). Overall, the data presented in Table 20 shows the significant differences between the five installations, most of which can be explained by the types of units supported at each Army post. Whereas Fort Leonard Wood and Fort Jackson support large trainee populations who are younger, lower in rank, and have had little or no contact with the Army's Dental Care System, Fort Hood and Fort Riley are home to combat, combat support, and combat service support units

which are more evenly distributed in age, rank, and dental system experience. Fort Knox, which supports a mixed population of trainees and combat, combat support, and combat service support units, also displays demographical and dental administrative characteristics that are more evenly distributed among the dental emergency patients seen.

The annual dental emergency rates reported in Table 20 range from a low at Fort Hood of 314.5 per 1,000 personnel to a high of nearly 1,070 per 1,000 personnel at Fort Jackson. The overall emergency rate for the five posts was 504 per 1000 personnel per year which was not significantly different than the overall emergency rate (422.4 per 1,000) reported for HSC in 1992 (studentized-t = 0.477, p = .05). Also, even though significant differences were detected in mean soldier's time and mean dentist's time among the various installations, no significant differences for these two time factors were noted when the analyses controlled for rank and diagnostic group. These facts are presented to demonstrate that, while the sample used for this study may not be representative of all personnel served by HSC dental facilities, these five installations are sufficently diverse to present a representative view of a dental emergency episode within HSC.

Characteristics of dental emergency patients

Identifying individuals who will experience a dental emergency is intuitively attractive in that it can lead to better planning of appropriate actions for disease management and resource allocation. The sex, age, race, and rank structure of the emergency patients who participated in this survey (Table 1) are nearly identical to the profiles of dental emergency patients reported in every military study on dental emergencies since 1979 (Payne and Posey, 1981; King, Parker, and Brunner, 1982; King and Brunner, 1984). In other words, these sociodemographic variables are not so much profile indicators of dental emergency patients, as they are a reflection of the composition of the army.

More interesting than the sociodemographical description of the emergency patients are the dental administrative characteristics seen in Tables 1 and 3. Given the mechanisms the Army Dental Care System has in place, namely the utilization of an annual examination and the dental fitness classification system (Army Regulation 40-182) to administratively monitor the oral health status of individuals and active duty units, it is surprising that over 66% of the emergency patients in this study had an annual exam, that over 64% were in either class 1 or 2, that nearly 49% of the problems had not been previously charted, and that 27% of the emergency problems had been previously charted but not as a class 3 problem. In defense of the fitness classification system, it must be pointed out that 98% of the 166 emergency patients who were in dental class 3 sought emergency dental care for the tooth/area that had been charted as a class 3. It would appear from the results of this study, that while the utilization of an annual examination and the dental fitness classification system are sound in theory, their overall effectiveness as monitors of oral health status are questionable. Perhaps this is more a reflection of the subjective nature of the fitness classification system and of the individual dental activities policies directed towards minimizing the number of reported class 3s in their system. Whatever the explanation,

further research efforts should be directed at reviewing the usefulness and the implementation of the dental fitness classification system.

Conditions associated with dental emergencies

A recent national survey reported that while the incidence of dental pathology among the general population appears to be declining, dental diseases among adults remain highly prevalent (Brown, Brunelle, and Carlos, 1987). While the incidence of dental disease may be changing, the conditions associated with seeking dental emergency care, at least for the military population, have remained fairly constant. In an evaluation of 360 dental emergency patients in a prolonged field training exercise, Payne and Posey (1981) reported that nearly 39% of all primary diagnoses were related to dental caries, 16% to pericoronitis, 10% to endodontic conditions, and 4% to defective restorations. In an evaluation of 182 sick call patients during a training exercise, King, Parker and Brunner (1982) reported that 41% of the primary diagnoses were caries related, 16% associated with third molars/pericoronitis, and 11% with defective restorations. Similar percentages and distributions were reported by King and Brunner (1984) in their evaluation of 355 emergency patients participating in a multi-national field exercise in Europe. The results of the present study (Table 4) show that while the percentage of primary diagnoses related to caries is lower than what has been previously reported (21.3%), the percentages of defective restorations (13.2%), 3rd molars/pericoronitis (17%), and endodontic conditions (8%) are comparable to the results of the studies cited above.

The results of this study provide further evidence that most of the conditions associated with dental emergencies are theoretically preventable with periodic examinations and subsequent early treatment. More attention should be given to the development of dental policies directed towards early screening and treatment of those identified conditions before they become dental emergencies.

Time Impact of a dental emergency

Describing the time involved in the diagnosis and treatment of a dental emergency has allowed for one aspect of their impact on the soldier and the dental care system to be evaluated. Overall, a mean of 1.62 hours of soldier's time and a mean of 0.84 hours of dentist time for each dental emergency may be of little consequence. However, 264 thousand hours of soldier's time and 137 thousand hours of dentist time lost annually to the diagnosis and treatment of dental emergencies in HSC may be a significant problem in terms of lost productivity and staffing. These figures underestimate the true costs in time associated with dental emergencies as they do not consider other dimensions associated with dental related non-effectiveness in the workplace nor do they consider the time involved in follow-up appointments. The 1.62 hours per soldier per year involved in a dental emergency episode are comparable to the 1.48 hours of time lost to dental problems annually among U.S. employed individuals reported recently by Gift, Reisine and Larach (1992).

The results of the multivariate analyses (Tables 17 and 18) for total soldier's time and total dentist's time involved in a dental emergency episode deserve further discussion. Although both models explained only a small amount of the variation seen in total time, the significant factors associated with these variations can perhaps provide direction for policy development geared at reducing the time impact of a dental emergency. The model for total soldier's time (Table 17) shows that significant reductions in soldier's time could be realized if: (1) Greater attention was paid to the diagnosis and treatment of conditions leading to an irreversible pulpitis; (2) New methods of ensuring compliance with an annual examination were developed; and (3) Dental problems that have been charted as class 3 conditions were treated in a timely fashion. Total dentist's time involved in treating dental emergencies (Table 18) would also be significantly reduced by addressing conditions leading to irreversible pulpitis and those problems previously charted as class 3.

This study has shown that the time impact of a dental emergency and its policy implications deserve consideration by the Army Dental Corps leadership. Means must be found to demonstrate the significant impact that a dental emergency has not only on an individual but on the entire system in terms that policy makers and unit commanders can understand. Also, if dental emergencies and oral health status can be presented in terms of the social and economic consequences, more effective arguments can be made to secure support and needed funds in an integrated policy on the Army's health.

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APPENDIX A

QUESTIONNAIRE AND LETTER OF INSTRUCTION

ACTIVE DUTY ARMY
DENTAL EMERGENCY SURVEY

FRONT DESK SECTION

CASNO

_ _ _ _ _ (1-5)

Start form for:

- All non-appointed active duty personnel (DO NOT include patients who were told to return by a Dentist for procedures such as POT's).

Ask the SOLDIER the following questions and enter the response code in the appropriate keypunch space at the right of each question.

1. Do you feel that you have an emergency dental problem NOW?

   1 = YES
   2 = NO (Complete questions 2 through 7 and GO NO FURTHER) (6)
   3 = DO NOT KNOW

2. Why did you come to the clinic TODAY?:

   1 = Told by the UNIT to have a dental EXAMINATION
   2 = Told by the UNIT to get a dental TREATMENT
   3 = Told by the UNIT to get a dental X-RAY
   4 = WANTS to START receiving dental care
   5 = MISSED an appointment and WANTS to get back into the system (7)
   6 = WAS SEEN by a dentist recently and TOLD TO COME BACK
   7 = OTHER (Enter below the REASON FOR SOLDIER COMING HERE TODAY)

_____

3. CURRENT UNIT: _____ UNIT IDENTIFICATION CODE: (UIC) W_ _ _ _ _ (8-12)
   (e.g., A Co 1/66 Arm 2AD)

4. Soldier's LAST 4 of Social Security number: _ _ _ _ (13-16)

5. When did soldier arrive at the clinic?

	TIME		DAY		MONTH	
(e.g.,	0	7	3	5	0	3	0	9) (17-24)

6. Location of soldier's record:

1 = At this clinic
2 = At another clinic on this post
3 = At soldier's unit on this post
4 = Soldier brought it with him today
5 = Soldier has it but did not bring it today
6 = Located at another post (Soldier is TDY) (25)
7 = Never created (e.g., Soldier in Basic Tng)
8 = Other (Specify _____)

7. From this patient's record, has this patient had a broken appointment within the past 12 months?
1 = YES 2 = NO (26)

IF YES, enter the number of broken appointments.
_____ (27)

SOLDIER'S SECTION

CIRCLE YOUR ANSWER OR FILL IN THE BLANKS FOR QUESTIONS 8 THRU 35.

8. Gender: 1 = Male 2 = Female (28)

9. Age on your last birthday: __ __ (29,30)

10. Ethnic group: (Optional) 1 = Black 2 = White 3 = Asian 4 = Hispanic 5 = Other (31)

11. Highest Education Level:

1 = NO High School
2 = SOME High School
3 = GED
4 = High School GRADUATE
5 = SOME COLLEGE(Less than 4 years)
6 = COLLEGE GRADUATE(4 years or more) (32)

12. Rank:

01 = PVT	02 = PV2	03 = PFC	04 = SPC/CPL	05 = SGT
06 = SSG	07 = SFC	08 = MSG/1SG	09 = SGM/CSM	
10 = WO1	11 = CW2	12 = CW3	13 = CW4	14 = MWO
15= 2LT	16 = 1LT	17 = CPT	18 = MAJ	19 = LTC
20= COL	21 = BG	22 = MG	23 = LTG	

(33)

13. MOS (Enter your PRIMARY MOS): (Example: Infantryman - 1 1 B) (34-36)

14. What is YOUR CURRENT DUTY POSITION?

1 = MEMBER OF A FIELD UNIT (Deployable or TOE unit)
2 = INSTRUCTOR
3 = STUDENT
4 = OTHER MEMBER OF A GARRISON UNIT (e.g., Administrative position in a non-deployable or TDA unit)
5 = I AM CURRENTLY IN TRANSIT BETWEEN UNITS
6 = Drill Sargent
7 = OTHER (Enter your current duty status below)

_____ (37)

15. Enter your NUMBER OF YEARS OF ACTIVE SERVICE (To nearest year):

Example: 6 months or less, enter 00. __ __
5 years and 4 months, enter 05.
10 years and 7 months, enter 11. (38,39)

16. Time you left place of duty/home for THIS CLINIC VISIT: TIME
(e.g., __0__7__3__5) __ __:__ __ (40-43)

17. What is YOUR UNIT DOING RIGHT NOW? (If you were not here, what would you be doing now?)

1 = FIELD training (Including outdoor classes)
2 = GARRISON training (Including indoor classes)
3 = MISSION/NORMAL DUTY (Supporting other military organizations or other members of your organization)
4 = OFF (e.g., Training holiday, Stand down, or Personal time)
5 = Unit is deploying
6 = OTHER (Enter your UNIT'S current ACTIVITY) (44)

_____

18. Are you experiencing dental pain RIGHT NOW?

1 = YES 2 = NO 3 = NOT SURE (45)

19. IF your current dental problem is causing you pain RIGHT NOW, place a vertical mark on the line below that represents your pain.

|----------|
NO PAIN WORST PAIN IMAGINABLE

20. In your opinion, could the condition that brought you here today

have been treated as a routine appointment instead of as an emergency?

1 = YES 2 = NO 3 = I DON'T KNOW (46)

21. IF your current dental problem is causing you pain RIGHT NOW, circle the word/number that best describes your pain.

0	1	2	3	4	5
NO PAIN	MILD	DISCOMFORTING	DISTRESSING	HORRIBLE	EXCRUCIATING

(47)

22. Has this DENTAL PROBLEM INTERFERED with your military job? If YES, please describe briefly.

1 = DOES NOT INTERFERE WITH JOB (48)

2 = YES, IT INTERFERES WITH MY JOB

---

23. When did THIS DENTAL PROBLEM first bother you?

1 = First time today
2 = Yesterday
3 = 2 days TO a week ago
4 = More than a week TO a month ago
5 = More than a month TO 6 months ago
6 = More than 6 months TO a year ago
7 = More than a year ago

(49)

24. THIS DENTAL PROBLEM has been:

1 = Getting better 2 = Staying the same 3 = Getting worse (50)

25. Why did you pick THIS TIME to come to this clinic?

1 = My DENTAL PROBLEM got so bad I could no longer stand it. (51)
2 = I noticed that something was WRONG and I wanted to get it. taken care of before it got any worse.
3 = Instructed to come here BY THE DENTAL PERSONNEL.
4 = Instructed to come here BY MY UNIT.
5 = This is the BEST TIME FOR ME.
6 = This is the BEST TIME FOR MY WORK SCHEDULE.
7 = OTHER (Enter REASON for coming here AT THIS TIME).

---

26. Besides your CURRENT DENTAL PROBLEM, do you believe that you are in GOOD DENTAL HEALTH?

1 = YES 2 = NO 3 = NOT SURE (52)

27. From the list below, choose the word(s) that best describe your pain and with a check mark, rate the level of intensity when your pain is at its WORST.

	NONE	MILD	MODERATE	SEVERE	
THROBBING	0)__	1)__	2)___	3)___	__(53)
SHOOTING	0)__	1)__	2)___	3)___	__(54)
STABBING	0)__	1)__	2)___	3)___	__(55)
SHARP	0)__	1)__	2)___	3)___	__(56)
CRAMPING	0)__	1)__	2)___	3)___	__(57)
GNAWING	0)__	1)__	2)___	3)___	__(58)
HOT-BURNING	0)__	1)__	2)___	3)___	__(59)
ACHING	0)__	1)__	2)___	3)___	__(60)
HEAVY	0)__	1)__	2)___	3)___	__(61)
TENDER	0)__	1)__	2)___	3)___	__(62)
SPLITTING	0)__	1)__	2)___	3)___	__(63)
TIRING-EXHAUSTING	0)__	1)__	2)___	3)___	__(64)
SICKENING	0)__	1)__	2)___	3)___	__(65)
FEARFUL	0)__	1)__	2)___	3)___	__(66)
PUNISHING-CRUEL	0)__	1)__	2)___	3)___	__(67)

28. Have you ever had an ANNUAL EXAMINATION in a Military Dental Clinic?

1 = YES 2 = NO 3 = NOT SURE (68)

If YES, what did the MILITARY DENTAL CLINIC STAFF tell you at the end of the examination?

1 = NO DENTAL TREATMENT needed
2 = ROUTINE DENTAL TREATMENT needed (i.e., cleanings, fillings, dentures)
3 = Need DENTAL TREATMENT TO AVOID A DENTAL EMERGENCY
4 = Need an additional DENTAL EXAMINATION (69)
5 = Need PANOGRAPHIC X-RAY
6 = NOT TOLD ANYTHING ABOUT WHAT DENTAL CARE I NEED
7 = DO NOT REMEMBER
8 = OTHER (Enter WHAT YOU WERE TOLD)_____

29. When your CURRENT DENTAL PROBLEM was at its WORST, indicate the level of pain you experienced.

0	1	2	3	4	5
NO PAIN	MILD	DISCOMFORTING	DISTRESSING	HORRIBLE	EXCRUCIATING

(70)

30. Mark any of the following self-treatments that you have used to help reduce the pain of your current dental condition. If none, leave blank.

			IF YES, DID IT HELP?		
	YES (1)	NO (2)	YES (3)	NO (4)	
Over-the-Counter Pain Medication	___	___	___	___	__(71,72)
A gel or cream applied to painful area	___	___	___	___	__(73,74)
Over-the-Counter Sleeping Medication	___	___	___	___	__(75,76)
Medication prescribed for Another Problem	___	___	___	___	__(77,78)
Alcoholic Beverage	___	___	___	___	__(79,80)
Ice Packs/ Heat Packs	___	___	___	___	__(81,82)
Mouth Rinses (i.e. salt water, etc.)	___	___	___	___	__(83,84)
Relaxation Techniques	___	___	___	___	__(85,86)
Other___ _____	___	___	___	___	__(87,88)

31. When your CURRENT DENTAL PROBLEM was at its WORST, place a vertical mark on the line below that represents the pain you felt.

|----------|

NO PAIN — WORST PAIN IMAGINABLE

32. How would you describe your unit's support of your dental health needs?

1	2	3	4	5
Time off without question	Time off if mission permits	Time off if convenient to the unit	Time off as a last resort	No Time off

(89)

33. Almost all people have some degree of stress in their lives, but some have a <u>great deal</u> of stress.

How often do YOU feel <u>great</u> stress?

1 = almost every day
2 = several days a week
3 = once or twice a week
4 = less often than once a week
5 = never

(90)

34. If your CURRENT DENTAL PROBLEM has been bothering you for longer than one week, why did you wait until now to come to the clinic?

1 = I was on leave/TDY
2 = Could not get an appointment
3 = Unit would not let me come until now
4 = I am afraid to see a dentist
5 = The problem has gotten worse
6 = My unit was in the field
7 = Other_____ (91)

35. Have you experienced any of the following due to your CURRENT DENTAL PROBLEM?

	<u>YES=1</u>	<u>NO=2</u>	
Sleep loss	___	___	__(92)
Decreased jaw or facial movement	___	___	__(93)
Poorer job performance	___	___	__(94)
Loss of appetite	___	___	__(95)
Diminished interest in social/recreational activities	___	___	__(96)

STOP. MAKE NO FURTHER MARKS ON THIS FORM. GIVE THE FORM TO THE INDIVIDUAL WHO ESCORTS YOU TO THE DENTAL CHAIR.

DENTAL ASSISTANT SECTION

36. TIME patient was seated in operatory (e.g., 0745): ___ (97-101)

CHECK ENTRIES MADE BY THE SOLDIER AND ENTER CODES IN APPROPRIATE SPACES.

37. Is soldier's permanent dental record available?
(Do not count temporary record or one generated for this visit.)

1 = YES
2 = NO (Go to # 43. AFTER soldier has been examined by dentist) (102)

THE FOLLOWING QUESTIONS ARE TO BE ANSWERED FROM THE SOLDIER'S DENTAL RECORD AS IT EXISTED BEFORE TODAYS VISIT AND BEFORE EXAMINING THE PATIENT TODAY.

38. What is the soldier's DENTAL CLASS as listed in the record?

1 = CLASS 1
2 = CLASS 2
3 = CLASS 3 (If CLASS-3 Go to "A." below)
4 = CLASS 4 (If CLASS-4 Go to "B." below) (103)
5 = Soldier's DENTAL CLASSIFICATION is NOT listed in record
6 = CAN NOT BE DETERMINED (e.g., conflicting information in record)

A. If designated CLASS 3 by the record, is the reason stated in record?

1 = YES 2 = NO (104)

B.1. If designated CLASS 4, what is the REASON?

1 = Soldier NEEDS DENTAL EXAMINATION
2 = Panographic X-RAY NOT VERIFIED as on hand at CPSF (105)
3 = UNKNOWN

B.2. What was soldier's last dental classification BEFORE becoming CLASS 4?

1 = CLASS 1
2 = CLASS 2 (106)
3 = CLASS 3
4 = Soldier ALWAYS CATEGORIZED CLASS 4.
5 = UNKNOWN

39. Did patient have an annual exam in past year? 1 = YES 2 = NO (107)

40. When was soldier's LAST VISIT? DAY MONTH YEAR

__ __ __ __ (108-113)

41. What was the PURPOSE of the soldier's LAST VISIT?

1. ROUTINE CARE
2. EMERGENCY CARE
3. EXAMINATION (114)
4. OTHER (Specify) _____

42. Has the soldier EVER RECEIVED ROUTINE CARE? 1 = YES 2 = NO (115)

43. Has the soldier HAD A PREVIOUS DENTAL EMERGENCY? 1 = YES 2 = NO (116)

If YES, how many in the past 12 months? (117)

44. PROVIDER ID of DENTIST SEEING PATIENT TODAY: __ (118-121)

DENTIST'S SECTION

AFTER COMPLETING THE EXAMINATION AND TREATMENT COMPLETE THE FOLLOWING.

45. Which TOOTH/AREA is the CHIEF COMPLAINT? Give the number of the tooth, 01-32, most directly associated with the chief complaint; or 99, if not directly associated with teeth (e.g., TMJ or facial laceration).

(122,123)

46. Was this TOOTH/AREA CHARTED PREVIOUSLY?

1 = YES, as CLASS 3
2 = YES, but not as CLASS 3 (124)
3 = NO
4 = UNKNOWN

47. Was patient seen for this tooth/area on emergency before?

(125)

1 = YES 2 = NO

48. Based on the record, how many other Class 3 teeth are currently charted?

(126)

49. In your opinion, could the patient's CURRENT DENTAL PROBLEM have been treated on a routine appointment instead of as an emergency?

1 = YES 2 = NO

(127)

50. How many other emergency visits (other than POT) has patient had in past 12 months?

(128)

51. In your opinion, is the patient CURRENTLY SUFFERING A DENTAL EMERGENCY (pain, swelling, bleeding, or trauma)?

1 = YES 2 = NO

(129)

52. From your clinical EXAMINATION, indicate the word that YOU THINK best describes the LEVEL OF PAIN the patient is suffering.

1	2	3	4
NO PAIN	MILD PAIN	MODERATE PAIN	SEVERE PAIN

(130)

53. In your clinical judgement, might this CURRENT DENTAL CONDITION interfere with this soldier's ability to perform military duties?

1 = YES
2 = NO (131)

54. In your opinion, after the clinical examination, might the patient be using this clinic visit to avoid his/her military duties?

1 = YES 2 = NO 3 = UNCERTAIN __ (132)

55. Using CONDITION-LIST CODES 01 to 15, enter the code which best describes the CURRENT CONDITION, or use "99" for OTHER (e.g., Sinusitis).

(133,134)

56. DISPOSITION of the patient?

1 = NO TREATMENT PROVIDED
2 = TEMPORARY TREATMENT PROVIDED
3 = PERMANENT TREATMENT PROVIDED
4 = LIGHT DUTY/QUARTERS - Enter length of time below (e.g., 24 hours)
5 = REFER TO SOMEONE ELSE - Enter where referred below (e.g., Refer to Endo)
6 = OTHER - Enter disposition below (e.g., Admit to hospital)

_____ (135)

57. Did you write a PRESCRIPTION for the patient?

1 = NO
2 = YES, Non-narcotic Analgesic
3 = YES, Narcotic Analgesic
4 = YES, Antibiotic
5 = YES, Muscle Relaxant
6 = YES, Other(Specify:_____ (136)

58. Is patient required to RETURN FOR FOLLOW-UP? (e.g., Suture removal)

1 = YES 2 = NO (137)

59. List treatment provided: (Enter ALL Dental Workload Reporting System (DWRS) codes used FOR THIS PATIENT, FOR THIS VISIT From DA Pamphlet 40-16.)

	CODE	
1	_ _ _ _ _ _	(138-143)
2	_ _ _ _ _ _	(144-149)
3	_ _ _ _ _ _	(150-155)
4	_ _ _ _ _ _	(156-161)
5	_ _ _ _ _ _	(162-167)
6	_ _ _ _ _ _	(168-173)
7	_ _ _ _ _ _	(174-179)
8	_ _ _ _ _ _	(180-185)
9	_ _ _ _ _ _	(186-191)
10	_ _ _ _ _ _	(192-197)

59. TIME when patient left the operatory (e.g., 0845): __ __ __ __ (198-201)

CONDITIONS-LIST CODES

01 Caries, mild/moderate - no irreversible pulpal involvement.

02 Caries, advanced - probable pulpal involvement from caries.

03 Defective restoration - deteriorated restorations or prostheses that cannot be maintained for 12 months, or result in definitive symptoms.

04 Tooth fractures/evulsions - resulting from trauma, with or without pulpal involvement.

05 Acute/chronic gingivitis - acute/chronic inflamation with or without lose of periodontal attachment and pocket depth less than 5mm.

06 Active periodontitis - acute to severe which may include pocket depth of 5mm or more, tooth mobility, furcation involvement, and severe recesssion.

07 Peridontal abscess - localized, acute, painful, infection of periodontium.

08 Pericoronitis - acute, inflammation of tissue surrounding a tooth, usually 3rd molars.

09 Esthetic emergency - teeth requiring immediate prosthodontic treatment for adequate mastication, communication, or acceptable esthetics.

10 Unerupted teeth - unerrupted, partially erupted, or malposed teeth with historical, clinical, or radiographic signs or symptoms of pathosis that are recommended for removal.

11 Oral lesions/traumatic or inflammatory - initial or recurring lesions; ANUG; apthous ulcers; herpetic lesions; traumatic lesions; chemical or thermal burns; lacerations; hematomas or abrasions; oral malignancies.

12 Temporomandibular joint disorders - myofascial pain dysfunction; dislocation, subluxation or other associated conditions.

13 Post-op/surg. complication - post-operative or post-surgical complications including extraction site infection; hemorrhage control; dressing changes; suture procedures; medication application; follow-up care.

14 Endodontic Condition - root canal therapy which represents treatment for the completion of endodontic therapy.

15 Other - any condition not covered by the above list.

DEPARTMENT OF THE ARMY
U.S. ARMY HEALTH CARE STUDIES AND CLINICAL INVESTIGATION ACTIVITY
FORT SAM HOUSTON, TEXAS 78234-6060

HSHN-D (5-5) 1 September 1992

MEMORANDUM FOR Commander, USA Dental Activity

SUBJECT: Active Duty Dental Emergency Survey Letter of Instruction

1. **RECOMMENDATIONS TO COMMANDERS**

a. Select clinics that are used primarily by **active duty** soldiers.

b. Appoint a project officer to supervise the administration of the survey.

c. Brief the project officer on the purpose and importance of this survey.

2. **DUTIES OF THE PROJECT OFFICER**

a. Ensure that the questionnaires are distributed to selected clinics.

b. Brief dental personnel involved with the survey about the purpose of the study and the importance of accurate and complete data collection.

c. Ensure that the questionnaires are collected and check for completeness.

d. Return questionnaires by **certified mail in one mailing no later than 30 November 1992** to:

Commander, HCSCIA
ATTN: HSHN-D (LTC Amstutz)
Bldg 2268
Fort Sam Houston, TX 78234-6060

3. **HOW TO ADMINISTER THE SURVEY**

You have been sent 200 questionnaires that will collect information from four groups: front desk personnel, patients, dental assistants, and the treating dentists. The following guidelines are given for administering the questionnaire:

a. If possible, appoint one person per clinic to actually administer the questionnaire. This will avoid front desk confusion and congestion.

b. Prior to initiating the study, the project officer should meet with all involved clinic personnel to explain the purpose and the administration of the survey.

c. Administering only a few surveys over several days will help to avoid participant "burn-out".

d. Every attempt should be made to include after duty hours emergencies that involve active duty soldiers. CQs should be briefed and instructed on the administering of the survey.

e. This survey may be duplicated or reproduced if necessary.

4. If you have any questions about the survey, please contact LTC Amstutz at DSN 471-1541 or Commercial 512-221-1541.

APPENDIX B
TASKING LETTER

HSDS (5-5) 1 September 1992

MEMORANDUM FOR

Dental Activity Commanders
Survey Participants

SUBJECT: Active Duty Army Dental Emergency Survey

1. The US Army Health Care Studies and Clinical Investigation Activity, Dental Studies Division, Fort Sam Houston, Texas, is conducting a survey of peacetime dental emergencies among active duty soldiers within the Army Dental Care System under the AMEDD Studies Program.

2. The objectives of the study are:

a. to estimate the prevalence of dental emergencies among soldiers treated by the U.S. Army Dental Care System.

b. to document the conditions causing dental emergencies.

c. to report the disposition (treatment) of soldiers with dental emergencies.

d. to estimate the costs to the soldier's unit and to the Army Dental Care System associated with the diagnosis, treatment, and dispostion of a soldier with a dental emergency.

3. Two hundred survey forms will be mailed to your DENTAC.

4. Request you:

a. Appoint a POC/project officer to assist the primary researcher, LTC Richard Amstutz, DSN 471-1541, HCSCIA, Ft. Sam Houston, Tx. Furnish the POC name to HCSCIA vial E-mail (sciad@ftsmhstn-hsc-army.mil) or FAX 512-554-4745, NLT 30 October 1992. This person will be responsible for distributing and collecting survey forms, briefing survey participants, and coordinating requirements with the primary researcher.

PATRICK D. SCULLEY
Colonel, DC
Director of Dental Services

TABLES

TABLE 1
DESCRIPTIVE STATISTICS OF EMERGENCY PATIENTS
(N=805)

PARAMETER	FREQUENCY [a]	PERCENT [b]
SEX		
- Male	644	80.0
- Female	155	19.3
AGE		
- 17 to 24	474	58.9
- 25 to 30	141	17.5
- 31 to 35	92	11.4
- 36 to 40	61	7.6
- > 40	37	4.6
RACE		
- Black	252	31.3
- White	454	56.4
- Hispanic	56	7.0
- Asian	12	1.5
- Other	7	0.9
YEARS OF ACTIVE SERVICE		
- 0 to 1 Years	245	30.4
- 1 to 3 Years	193	24.0
- 3 to 10 Years	191	23.7
- 10 to 15 Years	90	11.2
- 15 to 20 Years	77	9.6
- 20 to 30 Years	9	1.1
RANK		
- E1 to E4	534	66.3
- E5 to E9	223	27.7
- WO1 to O8	48	6.0
PERCEIVED ORAL HEALTH STATUS		
- Good to Excellent	477	77.1
- Fair to Poor	142	22.9
EDUCATION		
- Some High School	6	0.7
- GED	48	6.0
- HS Graduate	364	45.2
- Some College	314	39.0
- College Graduate	63	7.8
ANNUAL EXAM IN PAST 12 MONTHS		
- Yes	534	66.3
- No	271	33.7
DENTAL FITNESS CLASSIFICATION		
- Class I	74	9.2
- Class II	443	55.0
- Class III	166	20.6
- Class IV	122	15.2

[a] May not add to total due to nonresponse.
[b] May not add to 100% due to rounding.

TABLE 2

FREQUENCY OF CURRENT DUTY POSITION
(n=765)

DUTY POSITION	FREQUENCY	PERCENT
Member of a Field Unit (Deployable/TOE)	315	41.2
Instructor	34	4.5
Student	138	18.0
Garrison Unit (non-deployable/TDA unit)	89	11.6
In Transit Between Units	12	1.6
Drill Sargeant	10	1.3
Other	167	21.8

TABLE 3

DENTAL ADMINISTRATION CHARACTERISTICS BY PERCENT WITH ANNUAL EXAMINATION (n=805)

Characteristic	n	Percent with Annual Exam in Past 12 Months	χ^2 value[a]
Availability of Dental Record			
Yes	726	96.3	
No	79	3.7	65.99[b]
Dental Fitness Classification			
Class I	74	87.8	16.87[b]
Class II	443	78.3	63.46[b]
Class III	166	68.1	.28
Class IV	64	10.9	95.55[b]
Current Problem Previously Charted			
Yes, as Class III	162	64.8	.21
Yes, not as Class III	216	82.4	8.35[b]
No	391	61.4	17.18[b]
Unknown	23	26.1	

[a] Differences in frequency tested by chi-square (χ^2) analysis comparing the frequency of those with an annual exam to the frequency of those who did not.

[b] Indicates statistically significant difference, $p < .005$.

TABLE 4

FREQUENCY OF DIAGNOSIS FOR EMERGENCY PATIENTS (n=803)

DIAGNOSIS	FREQUENCY [a]	PERCENT [a]
Mild/Moderate Caries	73	9.1
Advanced Caries	98	12.2
Defective Restoration	106	13.2
Tooth Fracture/Avulsion	38	4.7
Acute/Chronic Gingivitis	33	4.1
Active Periodontitis	19	2.4
Periodontal Abscess	19	2.4
Pericoronitis	70	8.7
Esthetic Emergency	18	2.2
Unerupted Tooth	66	8.2
Oral Lesions Traumatic/Inflammatory	13	1.6
Temporomandibular Joint Disorders	11	1.4
Post-op/Surgical Complication	41	5.1
Endodontic Condition	64	8.0
Other [b]	134	16.6

[a] May not add to total due to nonresponse.

[b] Any condition not covered by above list.

TABLE 5

TOOTH OR AREA INVOLVED AS DENTAL EMERGENCY CHIEF COMPLAINT (n=804)

TOOTH/ AREA	FREQUENCY	PERCENT
MAXILLARY ARCH		
3rd Molars	57	7.0
2nd Molars	64	8.0
1st Molars	98	12.2
2nd Premolars	30	3.7
1st Premolars	20	2.5
Canines	6	0.7
Lateral Incisors	21	2.6
Central Incisors	48	6.0
MANDIBULAR ARCH		
3rd Molars	147	18.3
2nd Molars	78	9.7
1st Molars	122	15.2
2nd Premolars	17	2.1
1st Premolars	6	0.8
Canines	9	1.1
Lateral Incisors	8	1.0
Central Incisors	13	1.6
AREA NOT ASSOCIATED WITH TOOTH*	60	7.5

* This topic includes areas involving temporomandibular joint disorders, orofacial lacerations and trauma, and generalized oral tissue inflamation.

TABLE 6

FREQUENCY OF EMERGENCY DIAGNOSIS BY AGE GROUP (n=803)

DIAGNOSIS	AGE GROUPS (in years) 17 To 24 (n=473) (%)	25 to 30 (n=141) (%)	31 to 35 (n=92) (%)	36 to 40 (n=60) (%)	> 40 (n=37) (%)
Mild/Moderate Caries	47 (64.4)	19 (26.0)	6 (8.2)	1 (1.4)	0 (0.0)
Advanced Caries	66 (67.4)	14 (14.3)	9 (9.2)	6 (6.1)	3 (3.1)
Defective Restoration	35 (33.0)	30 (28.3)	15 (14.2)	14 (13.2)	12 (11.3)
Tooth Fracture/Avulsion	22 (57.9)	4 (10.5)	6 (15.8)	2 (5.3)	4 (10.5)
Acute/Chronic Gingivitis	24 (72.7)	4 (12.1)	3 (9.1)	2 (6.1)	0 (0.0)
Active Periodontitis	4 (21.1)	4 (21.1)	4 (21.1)	4 (21.1)	3 (15.8)
Periodontal Abscess	4 (21.1)	2 (10.5)	6 (31.6)	3 (15.8)	4 (21.1)
Pericoronitis	63 (90.0)	4 (5.7)	3 (4.3)	0 (0.0)	0 (0.0)
Esthetic Emergency	4 (22.2)	5 (27.8)	2 (11.1)	6 (33.3)	1 (5.6)
Unerupted Tooth	60 (90.9)	5 (7.6)	1 (1.5)	0 (0.0)	0 (0.0)
Oral Lesions Traumatic/Inflammatory	9 (69.2)	3 (23.1)	1 (7.7)	0 (0.0)	0 (0.0)
Temporomandibular Joint Disorders	6 (54.6)	3 (27.3)	2 (18.2)	0 (0.0)	0 (0.0)
Post-op/Surgical Complication	11 (/5.6)	7 (14.1)	2 (4.9)	1 (2.4)	0 (0.0)
Endodontic Condition	23 (35.9)	13 (20.3)	17 (26.6)	9 (14.1)	2 (3.1)
Other*	75 (60.0)	24 (17.9)	15 (11.1)	12 (9.0)	8 (6.0)

* Any condition not covered by above list.

TABLE 7

FREQUENCY OF DIAGNOSIS AND FITNESS CLASSIFICATION
BY PAY GRADE
(n=803)

	MILITARY PAY GRADE		
DIAGNOSIS	E1-E4 (n=533)	E5-E9 (n=222)	WO1-O9 (n=48)
Mild Caries	58 (79.4%)	14 (19.2%)	1 (1.4%)
Advanced Caries	72 (73.5%)	21 (21.4%)	5 (5.1%)
Defective Restoration	45 (42.4%)	51 (48.1%)	10 (9.4%)
Fractured Tooth/Avulsion	24 (63.2%)	10 (26.3%)	4 (10.5%)
Gingivitis	27 (81.8%)	6 (18.2%)	0 (0.0%)
Active Periodontitis	5 (26.3%)	13 (68.4%)	1 (5.3%)
Periodontal Abscess	5 (26.3%)	12 (63.2%)	2 (10.5%)
Pericoronitis	62 (88.6%)	6 (8.6%)	2 (2.9%)
Esthetic Emergency	7 (38.9%)	8 (44.4%)	3 (16.7%)
Unerupted Tooth	62 (93.9%)	3 (4.5%)	1 (1.5%)
Oral Lesions Traumatic/Inflammatory	10 (76.9%)	3 (23.1%)	0 (0.0%)
TMJ Disorders[a]	6 (54.5%)	3 (27.3%)	2 (18.2%)
Post-op[b]	34 (82.9%)	6 (14.6%)	1 (2.4%)
Endodontic Condition	33 (51.6%)	27 (42.2%)	4 (6.2%)
Other[c]	83 (61.9%)	39 (29.1%)	12 (9.0%)
Dental Fitness Classification III			
- Yes	133 (80.1%)[de]	31 (18.7%)	2 (1.2%)

[a] Temporomandibular joint disorders--myofascial pain dysfunction; dislocation, subluxation or other associated conditions.
[b] Post-operative/ post-surgical complications including extraction site infection; hemorrhage control; follow-up care.
[c] Any condition not covered by above list.
[d] Proportion is significantly different than Rank Group E5 to E9, $\chi^2 = 11.13$, $p=.0001$.
[e] Proportion is significantly different than Rank Group WO1 to O9, $\chi^2 = 10.63$, $p=.0001$.

TABLE 8

FREQUENCY OF DIAGNOSTIC CODES FOR THOSE IN DENTAL FITNESS CLASS 3 (n=166)

DIAGNOSIS	FREQUENCY	PERCENT
Mild Caries	15	9.0
Advanced Caries	50	30.1
Defective Restoration	13	7.8
Fractured Tooth/Avulsion	5	3.0
Gingivitis	3	1.8
Active Periodontitis	4	2.4
Periodontal Abscess	0	0.0
Pericoronitis	12	7.2
Esthetic Emergency	2	1.2
Unerupted Tooth	9	5.4
Oral Lesions Traumatic/Inflammatory	2	1.2
TMJ Disorders [a]	0	0.0
Post-op [b]	7	4.2
Endodontic Condition	22	13.2
Other [c]	22	13.2

[a] Temporomandibular joint disorders--myofascial pain dysfunction; dislocation, subluxation or other associated conditions.

[b] Post-operative/ post-surgical complications including extraction site infection; hemorrhage control; follow-up care.

[c] Any condition not covered by above list.

TABLE 9

FREQUENCY OF DIAGNOSTIC GROUPS
(n=797)

DIAGNOSTIC GROUP	FREQUENCY	PERCENT
Reversible Pulpitis[a]	175	22.0
Irreversible Pulpitis[b]	149	18.7
Pericoronitis	147	18.4
Periodontal Related[c]	71	8.9
Orofacial Trauma[d]	62	7.8
Post-op[e]	41	5.1
Other[f]	152	19.1

[a] Mild/moderate caries or defective restoration without irreversible pulpal involvment.
[b] Advanced caries with probable pulpal involvement or any condition requiring root canal therapy.
[c] Acute/chronic gingivitis, active periodontitis, or periodontal abscess.
[d] A tooth fracture/avulsion, oral lesions: traumatic or inflammatory, or temporomandibular joint disorders.
[e] Any post-operative or post-surgical complication including extraction site infection, hemorrhage control, dressing changes, suture procedures, medication application, or follow-up care.
[f] All other conditions.

TABLE 10

FREQUENCY OF DIAGNOSTIC GROUP BY AGE GROUP (n=803)

DIAGNOSTIC GROUP	AGE GROUPS (in years) 17 To 24 (n=473) (%)	25 to 30 (n=141) (%)	31 to 35 (n=92) (%)	36 to 40 (n=60) (%)	> 40 (n=37) (%)
Reversible Pulpitis[a]	80 (45.7)	48 (27.4)	20 (11.4)	15 (8.6)	12 (6.9)
Irreversible Pulpitis[b]	82 (55.0)	22 (14.8)	25 (16.8)	15 (10.1)	5 (3.4)
Pericoronitis	126 (85.7)	15 (10.2)	6 (4.1)	0 (0.0)	0 (0.0)
Periodontal Related[c]	32 (45.1)	10 (14.1)	13 (18.3)	9 (12.7)	7 (9.9)
Orofacial Trauma[d]	37 (59.7)	10 (16.1)	9 (14.5)	2 (3.2)	4 (6.5)
Post-op[e]	31 (75.6)	7 (17.1)	2 (4.9)	1 (2.4)	0 (0.0)
Other[f]	79 (52.0)	29 (19.1)	17 (11.2)	18 (11.8)	9 (5.9)

[a] Mild/moderate caries or defective restoration without irreversible pulpal involvment.
[b] Advanced caries with probable pulpal involvement or any condition requiring root canal therapy.
[c] Acute/chronic gingivitis, active periodontitis, or periodontal abscess.
[d] A tooth fracture/avulsion, oral lesions: traumatic or inflammatory, or temporomandibular joint disorders.
[e] Any post-operative or post-surgical complication including extraction site infection, hemorrhage control, dressing changes, suture procedures, medication application, or follow-up care.
[f] All other conditions.

TABLE 11

FREQUENCY OF DIAGNOSTIC GROUP BY PAY GRADE GROUP (n=797)

DIAGNOSTIC GROUP	MILITARY PAY GRADE		
	E1-E4 (n=527) (%)	E5-E9 (n=222) (%)	WO1-O9 (n=48) (%)
Reversible Pulpitis[a]	101 (57.7)	63 (36.0)	11 (6.3)
Irreversible Pulpitis[b]	97 (65.1)	43 (28.9)	9 (6.0)
Pericoronitis	128 (87.1)	16 (10.9)	3 (2.0)
Periodontal Related[c]	37 (52.1)	31 (43.7)	3 (4.2)
Orofacial Trauma[d]	40 (64.5)	16 (25.8)	6 (9.7)
Post-op[e]	34 (82.9)	6 (14.6)	1 (2.4)
Other[f]	90 (59.2)	47 (30.9)	15 (9.9)

[a] Mild/moderate caries or defective restoration without irreversible pulpal involvment.
[b] Advanced caries with probable pulpal involvement or any condition requiring root canal therapy.
[c] Acute/chronic gingivitis, active periodontitis, or periodontal abscess.
[d] A tooth fracture/avulsion, oral lesions: traumatic or inflammatory, or temporomandibular joint disorders.
[e] Any post-operative or post-surgical complication including extraction site infection, hemorrhage control, dressing changes, suture procedures, medication application, or follow-up care.
[f] All other conditions.

TABLE 12

FREQUENCY OF DIAGNOSTIC GROUP BY DENTAL FITNESS CLASSIFICATION (n=748)

DIAGNOSTIC GROUP	CLASSIFICATION LEVEL			
	CLASS 1 (n=74) (%)	CLASS 2 (n=439) (%)	CLASS 3 (n=166) (%)	CLASS 4 (n=69) (%)
Reversible Pulpitis[a]	20 (27.0)	97 (22.1)	27 (16.3)	16 (23.2)
Irreversible Pulpitis[b]	5 (6.8)	49 (11.2)	69 (41.6)	15 (21.7)
Pericoronitis	12 (16.2)	90 (20.5)	23 (13.8)	11 (15.9)
Periodontal Related[c]	4 (5.4)	48 (10.9)	7 (4.2)	9 (13.0)
Orofacial Trauma[d]	5 (6.8)	46 (10.5)	7 (4.2)	3 (4.3)
Post-op[e]	4 (5.4)	27 (6.2)	7 (4.2)	0 (0.0)
Other[f]	24 (32.4)	82 (18.7)	26 (15.7)	15 (21.7)

[a] Mild/moderate caries or defective restoration without irreversible pulpal involvment.
[b] Advanced caries with probable pulpal involvement or any condition requiring root canal therapy.
[c] Acute/chronic gingivitis, active periodontitis, or periodontal abscess.
[d] A tooth fracture/avulsion, oral lesions: traumatic or inflammatory, or temporomandibular joint disorders.
[e] Any post-operative or post-surgical complication including extraction site infection, hemorrhage control, dressing changes, suture procedure, medication application, or follow-up care.
[f] All other conditions.

TABLE 13

FREQUENCY OF TOOTH/AREA INVOLVED BY DIAGNOSTIC GROUP
(n=748)

DIAGNOSTIC GROUP	3RD MOLARS n=204 (%)	2ND MOLARS n=126 (%)	1ST MOLARS n=210 (%)	PREMOLARS n=67 (%)	CANINES n=14 (%)	INCISORS n=77 (%)	OTHER AREA n=50 (%)
Reversible Pulpitis[a]	1 (0.5)	53 (42.1)	64 (30.5)	32 (47.8)	2 (14.3)	22 (28.6)	1 (2.0)
Irreversible Pulpitis[b]	6 (2.9)	34 (27.0)	76 (36.2)	13 (19.4)	3 (21.4)	17 (22.1)	0 (0.0)
Pericoronitis	151 (74.0)	2 (1.6)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	1 (2.0)
Periodontal Related[c]	9 (4.4)	15 (11.9)	16 (7.6)	3 (4.5)	2 (14.3)	10 (13.0)	16 (32.0)
Orofacial Trauma[d]	1 (0.5)	4 (3.2)	17 (8.1)	2 (3.0)	1 (7.1)	22 (28.6)	15 (30.0)
Post-op[e]	25 (12.3)	3 (2.4)	6 (2.9)	2 (3.0)	0 (0.0)	1 (1.3)	4 (8.0)
Other[f]	11 (5.4)	15 (11.9)	31 (14.8)	15 (22.4)	6 (42.9)	5 (6.5)	13 (26.0)

[a] Mild/moderate caries or defective restoration without irreversible pulpal involvment.
[b] Advanced caries with probable pulpal involvement or any condition requiring root canal therapy.
[c] Acute/chronic gingivitis, active periodontitis, or periodontal abscess.
[d] A tooth fracture/avulsion, oral lesions: traumatic or inflammatory, or temporomandibular joint disorders.
[e] Any post-operative or post-surgical complication including extraction site infection, hemorrhage control, dressing changes, suture procedures, medication application, or follow-up care.
[f] All other conditions.

TABLE 14

FREQUENCY OF 20 MOST FREQUENTLY PERFORMED EMERGENCY SERVICES
(n=1122)

TREATMENT	CODE a	FREQUENCY	PERCENT
PRESCRIPTION	9631	288	25.8
THERAPEUTIC MEDICATION BY INJECTION	9610	125	11.1
SEDATIVE/TEMPORARY RESTORATION	2940	101	9.0
INTERMEDIATE BASE	2954	73	6.5
TOOTH REMOVAL, COMPLICATED	7120	54	4.8
PULPECTOMY, TOTAL	3230	53	4.7
WRITTEN CONSULTATION	0150	52	4.6
PERIODIC ORAL EXAM	0120	50	4.5
TOOTH REMOVAL	7110	50	4.5
OCCLUSAL ADJUSTMENT, LIMITED	4330	44	3.9
PERIODONTAL SCALING	4342	34	3.0
POSTOPERATIVE TREATMENT	9918	29	2.6
TOOTH REMOVAL, IMPACTED	7130	24	2.1
ENAMELOPLASTY OR ODONTOPLASTY	2970	24	2.1
ENDODONTIC DIAGNOSTIC TEST	0460	24	2.1
AMALGAM, TWO SURFACE	2150	23	2.0
RESIN, COMPLEX	2336	20	1.8
AMALGAM, ONE SURFACE	2140	19	1.7
GLASS IONOMER WITH CAVITY PREPARATION	2215	18	1.6
AMALGAM, THREE SURFACE	2160	17	1.5

[a] Based on DoD codes provided in Department of the Army Pamphlet 40-16.

TABLE 15

FREQUENCY OF DISPOSITION OF PATIENT BY DIAGNOSIS
(N=800)

	DISPOSITION					
	NO TREATMENT (n=86)	TEMPORARY TREATMENT (n=268)	PERMANENT TREATMENT (n=277)	LIGHT DUTY/ QUARTERS (n=18)	REFERRAL (n=112)	OTHER (n=39)
DIAGNOSIS						
Mild Caries	14 (19.4%)	23 (31.9%)	30 (41.7%)	0 (0.0%)	3 (4.2%)	2 (2.8%)
Advanced Caries	2 (2.0%)	43 (43.9%)	38 (38.8%)	4 (4.1%)	10 (10.2%)	1 (1.0%)
Defective Restoration	12 (11.3%)	30 (28.3%)	44 (41.5%)	0 (0.0%)	14 (13.2%)	6 (5.7%)
Fractured Tooth/Avulsion	1 (2.8%)	11 (30.6%)	20 (55.6%)	0 (0.0%)	3 (8.3%)	1 (2.8%)
Gingivitis	3 (9.1%)	13 (39.4%)	9 (27.3%)	0 (0.0%)	6 (18.2%)	2 (6.1%)
Active Periodontitis	0 (0.0%)	5 (26.3%)	6 (31.6%)	2 (10.5%)	3 (15.8%)	3 (15.8%)
Periodontal Abscess	0 (0.0%)	7 (36.8%)	10 (52.6%)	1 (5.3%)	1 (5.3%)	0 (0.0%)
Pericoronitis	2 (2.9%)	20 (28.6%)	25 (35.7%)	0 (0.0%)	22 (31.4%)	1 (1.4%)
Esthetic Emergency	0 (0.0%)	11 (61.1%)	7 (38.9%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Unerupted Tooth	9 (13.6%)	12 (18.2%)	19 (28.8%)	0 (0.0%)	23 (34.9%)	3 (4.6%)
Oral Lesions Traumatic/ Inflammatory	4 (30.8%)	0 (0.0%)	5 (38.5%)	0 (0.0%)	3 (23.1%)	1 (7.7%)
TMJ Disorders [a]	2 (18.2%)	3 (27.3%)	2 (18.2%)	0 (0.0%)	4 (36.4%)	0 (0.0%)
Post-op [b]	5 (12.2%)	9 (22.0%)	11 (26.8%)	7 (17.1%)	5 (12.2%)	4 (9.8%)
Endodontic Condition	1 (1.2%)	50 (78.1%)	7 (10.9%)	2 (3.1%)	2 (0.3%)	2 (3.1%)
Other [c]	31 (23.1%)	31 (23.1%)	44 (32.8%)	2 (1.5%)	13 (9.7%)	13 (9.7%)

[a] Temporomandibular joint disorders–myofascial pain dysfunction; dislocation, subluxation or other associated conditions.
[b] Post-operative/ post-surgical complications including extraction site infection; hemorrhage control; follow-up care.
[c] Any condition not covered by above list.

TABLE 16
NUMBER OF HOURS INVOLVED IN TREATING DENTAL EMERGENCIES

		Hours			
		Soldier's Time		Dentist's Time	
	(n)	Mean (SE)[a]	95% CI	Mean (SE)[a]	95% CI
Total Hours	805	1.62 (.04)	1.54-1.70	.84 (.03)	.78-.90
Sex					
- Male	644	1.61 (.04)(A)	1.52-1.70	.80 (.02)(C)	.74- .85
- Female	155	1.66 (.10)(A)	1.48-1.84	1.02 (.08)(D)	.91-1.13
Rank					
- E1 to E4	534	1.70 (.05) (E)	1.60-1.79	.82 (.03) (G)	.76- .88
- E5 to E9	223	1.50 (.06) (E F)	1.35-1.65	.88 (.05) (G)	.79- .98
- WO1 to 08	48	1.27 (.11) (F)	.96-1.59	.81 (.08) (G)	.61-1.02
Race					
- White	454	1.57 (.05) (H)	1.46-1.67	.83 (.03) (J)	.77- .90
- Black	252	1.74 (.08) (H)	1.61-1.88	.88 (.05) (J)	.79- .97
- Hispanic	56	1.43 (.10) (H)	1.14-1.73	.63 (.06) (J)	.44- .82
- Other	19	2.10 (.34) (I)	1.59-2.61	1.17 (.25) (K)	.85-1.50
Education					
- High School or less	422	1.73 (.05) (L)	1.62-1.83	.85 (.03) (N)	.79- .92
- > High School	375	1.49 (.06) (M)	1.38-1.60	.82 (.04) (N)	.75- .89
Diagnostic Group					
- Reversible Pulpitis	175	1.51 (.08) (O)	1.35-1.66	.81 (.05) (Q)	.70- .91
- Irreversible Pulpitis	149	2.25 (.11) (P)	2.07-2.42	1.16 (.06) (R)	1.05-1.28
- Pericoronitis	147	1.49 (.10) (O)	1.32-1.66	.80 (.07) (Q)	.69- .92
- Periodontal Related	71	1.60 (.09) (O)	1.35-1.85	.86 (.07) (Q)	.70-1.02
- Orofacial Trauma/Pain	62	1.58 (.13) (O)	1.31-1.85	.65 (.07) (Q)	.48- .83
- Post-Operative/Surgery	41	1.32 (.15) (O)	.99-1.65	.62 (.08) (Q)	.41- .84
- Other	152	1.35 (.06) (O)	1.17-1.51	.71 (.06) (Q)	.59- .82
Annual Exam in Past 12 Months					
- Yes	534	1.49 (.04) (S)	1.40-1.59	.81 (.03) (U)	.75- .87
- No	271	1.87 (.08) (T)	1.74-2.00	.90 (.04) (U)	.81- .98
Dental Fitness Classification III					
- Yes	166	1.96 (.10) (V)	1.79-2.13	.97 (.07) (X)	.86-1.08
- No	639	1.53 (.04) (W)	1.44-1.62	.80 (.03) (Y)	.75- .86
Problem Previously Charted as Class III					
- Yes	162	2.04 (.11) (AA)	1.86-2.21	1.05 (.07) (CC)	.94-1.16
- No	643	1.51 (.04) (BB)	1.43-1.60	.79 (.03) (DD)	.73- .84
Perceived Oral Health Status					
- Good to Excellent	477	1.51 (.05) (EE)	1.41-1.61	.78 (.03) (GG)	.72- .85
- Fair to Poor	142	1.78 (.12) (FF)	1.59-1.96	.95 (.07) (HH)	.84-1.07

[a] Means with same letter are not significantly different at the p = .05 level.
Abbreviations; SE = Standard Error, 95% CI = Ninety-five percent Confidence Interval.

Table 17

Best Model Explaining Total Soldier Time Involved in Receiving Treatment for a Dental Emergency (n=804)

Variable	β	Contribution to R^2
Irreversible Pulpitis	0.635	0.0745
Annual Exam in Past 12 Months	-0.322	0.020
High School Graduate or Below	0.187	0.011
Problem Previously Charted as Class III	0.292	0.007

$R^2 = 0.112$, $F = 25.313$, $P < 0.0001$, d.f. 4,800.
All Beta's significant at $P < 0.05$.

Table 18

Best Model Explaining Total Dentist Time
Involved in Providing Treatment for a Dental Emergency
(n=789)

Variable	β	Contribution to R^2
Irreversible Pulpitis	0.360	0.059
Male	-0.188	0.010
Perceived Good or Excellent Oral Health Status	-0.099	0.004
Military Rank E1-E4	-0.97	0.003
Problem Previously Charted as Class III	0.110	0.003

$R^2 = 0.0800$, $F = 13.640$, $P < 0.0001$, d.f. 5,784.
All Beta's significant at $P < 0.05$.

TABLE 19

PROJECTED ANNUAL COSTS IN HOURS INVOLVED IN TREATING A DENTAL EMERGENCY*

VARIABLE	PERCENT OF TOTAL EMERGENCIES	SOLDIER'S TIME	DENTIST'S TIME
Total Health Services Command Active Duty Population	100.0	263604.8	136684.0
Diagnostic Group			
- Reversible Pulpitis	21.9	53932.4	28930.6
- Irreversible Pulpitis	18.7	68464.0	35297.0
- Pericoronitis	18.4	44611.0	23952.2
- Periodontal Related	8.9	23171.2	12454.5
- Orofacial Trauma/Pain	7.8	20053.5	8249.9
- Post-Operative/Surgery	5.1	10954.2	5145.2
- Other	19.1	41957.1	22066.3
Annual Exam in Past 12 Months			
- Yes	66.3	160745.2	87385.0
- No	33.7	102543.9	49352.7
Dental Fitness Classification III			
- Yes	20.6	65766.8	32547.8
- No	79.4	197674.3	103359.1
Problem Previously Charted as Class III			
- Yes	20.1	66801.7	34383.2
- No	79.9	196318.5	102709.9

* Figures are based on projecting the results of this study onto the total emergency visits (162,719) and the total active duty population (385,194) reported to Health Services Command in Fiscal Year 1992.

TABLE 20

COMPARISON OF DESCRIPTIVE STATISTICS BY ARMY INSTALLATION
(n=805)

	ARMY INSTALLATION				
	KNOX (n=163)	HOOD (n=187)	RILEY (n=179)	LEONARDWOOD (n=183)	JACKSON (n=93)
ACTIVE DUTY SUPPORTED	8956	35,271	13,834	14,046	10,801
EMERGENCY RATES per 1000 personnel per year	534.7	314.5	375.5	650.0	1069.8
PERCENT MALES	93.3[a]	80.6[b]	87.4[c]	75.4[b]	55.9
AGE GROUPS (%)					
17 to 24	35.0[a]	59.9[e]	53.1[c]	75.4	77.4
25 to 30	21.5	18.2	20.1	13.7	11.8
31 to 35	19.6[a]	12.3	9.5	7.1	7.5
36 to 50	23.9[d]	9.6[e]	17.3[c]	3.8	3.2
RACE					
% BLACK	23.9[d]	37.2	29.7	35.4	35.9
% WHITE	64.2[f]	53.9	58.7	57.3	56.5
% HISPANIC	7.5	6.1	9.9	5.6	6.5
RANK					
% E1 TO E4	38.0[a]	65.4[e]	61.2[c]	85.1	88.0
% E5 TO E9	54.0[a]	25.8[e]	33.7[c]	11.0	8.7
% WO1 TO 08	8.0	8.8	5.1	3.9	3.3
EDUCATION					
% HIGH SCHOOL GRAD	45.7[g]	52.7[g]	46.4[g]	62.2	52.2
% SOME COLLEGE	45.0[g]	37.9	46.3[g]	29.4	39.1
% COLLEGE GRAD	9.3	9.3	7.3	6.1	7.6
% ANNUAL EXAM PAST 12 MONTHS	77.3[c]	81.8[c]	83.2[c]	51.4[b]	12.9
DENTAL CLASSIFICATION					
% CLASS I	19.5[b]	14.0[b]	4.9	5.7	1.2
% CLASS II	66.2[b]	56.4[c]	66.5[b]	68.2[b]	13.6
% CLASS III	9.1[c]	23.5	22.6[b]	25.0	35.8
% CLASS IV	5.1[b]	6.1[b]	6.1[b]	1.2[b]	49.4

[a] Chi-square significantly different than Hood, Riley, Leonardwood and Jackson at the p=.05 level.
[b] Chi-square significantly different than Jackson at the p=.05 level.
[c] Chi-square significantly different than Leonardwood and Jackson at the p=.05 level.
[d] Chi-square significantly different than Hood, Leonardwood and Jackson at the p=.05 level.
[e] Chi-square significantly different than Riley at the p=.05 level.
[f] Chi-square significantly different than Hood at the p=.05 level.
[g] Chi-square significantly different than Leonardwood at the p=.05 level.
[h] Chi-square significantly different than Leonardwood and Jackson at the p=.05 level.

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